

KANSAS CORPORATION COMMISSION 1046408
OIL & GAS CONSERVATION DIVISION

Form ACO-1
June 2009

Form Must Be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 3842
 Name: Larson Engineering, Inc. dba Larson Operating Company
 Address 1: 562 W STATE RD 4
 Address 2: _____
 City: OLMITZ State: KS Zip: 67564 + 8561
 Contact Person: Thomas Larson
 Phone: (620) 653-7368
 CONTRACTOR: License # 33935
 Name: H. D. Drilling, LLC
 Wellsite Geologist: Vernon Schrag
 Purchaser: NCRA

Designate Type of Completion:

New Well Re-Entry Workover

Oil WSW SWD SIOW
 Gas D&A ENHR SIGW
 OG GSW Temp. Abd.
 CM (Coal Bed Methane)
 Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____
 Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

Deepening Re-perf. Conv. to ENHR Conv. to SWD
 Conv. to GSW

Plug Back: _____ Plug Back Total Depth _____
 Commingled Permit #: _____
 Dual Completion Permit #: _____
 SWD Permit #: _____
 ENHR Permit #: _____
 GSW Permit #: _____

<u>7/26/2010</u>	<u>8/8/2010</u>	<u>8/27/2010</u>
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-101-22249-00-00

Spot Description: _____
SE NE NW SW Sec. 20 Twp. 18 S. R. 30 East West
2275 Feet from North / South Line of Section
4187 Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:
 NE NW SE SW

County: Lane
 Lease Name: Harris Well #: 1-20
 Field Name: Cowdery
 Producing Formation: Cherokee, Marmaton
 Elevation: Ground: 2897 Kelly Bushing: 2904
 Total Depth: 4680 Plug Back Total Depth: 4634
 Amount of Surface Pipe Set and Cemented at: 258 Feet
 Multiple Stage Cementing Collar Used? Yes No
 If yes, show depth set: 2182 Feet
 If Alternate II completion, cement circulated from: 2182
 feet depth to: 0 w/ 160 sx cmt.

Drilling Fluid Management Plan
 (Data must be collected from the Reserve Pit)

Chloride content: 9600 ppm Fluid volume: 800 bbls
 Dewatering method used: Evaporated

Location of fluid disposal if hauled offsite: _____

Operator Name: _____
 Lease Name: _____ License #: _____
 Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West
 County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY	
<input checked="" type="checkbox"/> Letter of Confidentiality Received	Date: <u>11/22/2010</u>
<input checked="" type="checkbox"/> Confidential Release Date:	<u>11/21/2012</u>
<input checked="" type="checkbox"/> Wireline Log Received	
<input type="checkbox"/> Geologist Report Received	
<input type="checkbox"/> UIC Distribution	
ALT <input type="checkbox"/> I <input checked="" type="checkbox"/> II <input type="checkbox"/> III	Approved by: <u>NAOMI JAMES</u> Date: <u>11/22/2010</u>



1046408

Operator Name: Larson Engineering, Inc. dba Larson Operating Company Lease Name: Harris Well #: 1-20

Sec. 20 Twp. 18 S. R. 30 East West County: Lane

INSTRUCTIONS: Show important tops and base of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed. Attach complete copy of all Electric Wire-line Logs surveyed. Attach final geological well site report.

Drill Stem Tests Taken <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Electric Log Run <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Submitted Electronically <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>(If no, Submit Copy)</i> List All E. Logs Run: Dual Induction Dual Comp Porosity Microresistivity	<input checked="" type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum Attached Attached Attached
--	--

CASING RECORD <input checked="" type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
surface	12.25	8.625	20	258	Class A	175	2% gel, 3% CC
Production	7.875	5.5	15.5	4674	SMD	95	1/4#/sk flocele
Production	7.875	5.5	15.5	4674	EA-2	100	5#/sk gilsonite, 1/2% CFR

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone	0-2182	SMD	160	1/4#/sk flocele
	-			

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth
4	4557.5-59.5, 4473-76, 4366-75	250 Gal 15% NEFe	4557.5-59.5
		250 Gal 15% NEFe	4473-76
		250 Gal 15% MCA	4366-75

TUBING RECORD:	Size: <u>2.375</u>	Set At: <u>4626</u>	Packer At:	Liner Run: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Date of First, Resumed Production, SWD or ENHR. <u>8/27/2010</u>		Producing Method: <input type="checkbox"/> Flowing <input checked="" type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other (Explain) _____			
Estimated Production Per 24 Hours	Oil Bbls. <u>158</u>	Gas Mcf	Water Bbls. <u>4</u>	Gas-Oil Ratio	Gravity <u>36</u>

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input checked="" type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i> <input type="checkbox"/> Other (Specify) _____	PRODUCTION INTERVAL: <u>4366 - 4559.5</u>
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Form	ACO1 - Well Completion
Operator	Larson Engineering, Inc. dba Larson Operating Company
Well Name	Harris 1-20
Doc ID	1046408

Tops

Anhydrite	2200	+704
Base Anhydrite	2261	+643
Heebner	3902	-998
Lansing	3947	-1043
Stark Sh	4231	-1327
Pawnee	4434	-1530
Cherokee sh	4507	-1603
Mississippi	4578	-1674

ALLIED CEMENTING CO., LLC. 036784

REMIT TO P.O. BOX 31
RUSSELL, KANSAS 67665

SERVICE POINT:
Great Bend KS

DATE <u>7-26-10</u>	SEC. <u>20</u>	TWP. <u>18S</u>	RANGE <u>30W</u>	CALLED OUT	ON LOCATION	JOB START <u>10:00pm</u>	JOB FINISH <u>10:30pm</u>
LEASE <u>Harris</u>		WELL # <u>1-20</u>	LOCATION <u>Amy KS 10 west 15 south</u>	COUNTY <u>lane</u>	STATE <u>KS</u>		
OLD OR <input checked="" type="radio"/> NEW (Circle one)			<u>East into</u>				

CONTRACTOR 14-D Rig 3

TYPE OF JOB Surface

HOLE SIZE 12 1/4 T.D. 262

CASING SIZE 8 5/8 DEPTH 261

TUBING SIZE DEPTH

DRILL PIPE DEPTH

TOOL DEPTH

PRES. MAX MINIMUM

MEAS. LINE SHOE JOINT

CEMENT LEFT IN CSG. 15

PERFS.

DISPLACEMENT 15.50 BBLs

OWNER hanson

CEMENT

AMOUNT ORDERED 175 3/4 class A

3% cc 2% Gel

COMMON	<u>175</u>	@	<u>13.50</u>	<u>2362.50</u>
POZMIX		@		
GEL	<u>3</u>	@	<u>20.25</u>	<u>60.75</u>
CHLORIDE	<u>6</u>	@	<u>51.50</u>	<u>309.00</u>
ASC		@		
		@		
		@		
		@		
		@		
		@		
		@		
		@		
		@		
		@		
HANDLING	<u>175</u>	@	<u>2.25</u>	<u>393.75</u>
MILEAGE	<u>175 x 45 x .10</u>			<u>787.50</u>
TOTAL				<u>3,913.50</u>

EQUIPMENT

PUMP TRUCK CEMENTER wayne D

141 HELPER Alvin - R

BULK TRUCK

482 DRIVER Bob - R

BULK TRUCK

DRIVER

REMARKS:

Pipe on Bottom Break
circulation with Rig mud
Shut Down
Hook up to cement line
Mix 175 3/4 class A 3% cc 2% Gel
Displace 15 1/2 BBLs of water
Cement circulated Shut in
wash up Rig Down

SERVICE

DEPTH OF JOB	<u>261</u>		
PUMP TRUCK CHARGE			<u>990.00</u>
EXTRA FOOTAGE		@	
MILEAGE	<u>45</u>	@	<u>7.00</u>
MANIFOLD		@	
		@	
		@	

CHARGE TO: hanson

STREET _____

CITY _____ STATE _____ ZIP _____

TOTAL 1305.00

PLUG & FLOAT EQUIPMENT

	@	
	@	
	@	
	@	



CHARGE TO: Larson Operating

ADDRESS

CITY, STATE, ZIP CODE

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY
1. <u>NESS CITY KS</u>	<u>1-20</u>	<u>Harris</u>	<u>LANE</u>	<u>KS</u>	<u>Amey</u>
2.	TICKET TYPE <input checked="" type="checkbox"/> SERVICE <input type="checkbox"/> SALES	CONTRACTOR <u>Wild West</u>	RIG NAME/NO.	SHIPPED VIA <u>CT</u>	DELIVERED TO <u>location</u>
3.	WELL TYPE <u>oil</u>	WELL CATEGORY <u>Development</u>	JOB PURPOSE <u>cement post collar</u>	WELL PERMIT NO.	
4. REFERRAL LOCATION	INVOICE INSTRUCTIONS				

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.	UM	QTY.
		LOC	ACCT	DF				
575		1			MILEAGE TRK 114	40	mi	
576 D		1			Pump Charge	1	ea	
330		1			SMD Cement			160
581		1			Service Charge			250
583		1			Drayage	24950	lb	499
290		1			D-AIR			2
276		1			Fluocel			57

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY** provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

DATE SIGNED

TIME SIGNED A.M. P.M.

REMIT PAYMENT TO:

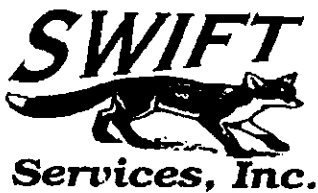
SWIFT SERVICES, INC.
P.O. BOX 466
NESS CITY, KS 67560
785-798-2300

SURVEY	AGREE	UN-DECID
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?		
WE UNDERSTOOD AND MET YOUR NEEDS?		
OUR SERVICE WAS PERFORMED WITHOUT DELAY?		
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?		
ARE YOU SATISFIED WITH OUR SERVICE?	<input type="checkbox"/> YES	<input type="checkbox"/> NO

CUSTOMER DID NOT WISH TO RESPOND

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on

SWIFT OPERATOR: AB Campbell APPROVAL



CHARGE TO: **PERSON OPERATING**
 ADDRESS:
 CITY, STATE, ZIP CODE:

SERVICE LOCATIONS
 1. **NESS CITY, KS** WELL/PROJECT NO. **1-20** LEASE **HARRIS** COUNTY/PARISH **LAWE** STATE **KS** CITY
 2. TICKET TYPE SERVICE CONTRACTOR **H-D DRILLING #3** RIG NAME/NO. SHIPPED VIA **CT** DELIVERED TO **LOCATION**
 3. SALES WELL TYPE **Oil** WELL CATEGORY **DEVELOPMENT** JOB PURPOSE **5 1/2" LONGSTRENG** WELL PERMIT NO.
 4. REFERRAL LOCATION INVOICE INSTRUCTIONS

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.	UM	QTY.
		LOC	ACCT	DF				
575		1			MILEAGE # 110	40	ME	
578		1			PUMP CHARGE	1	JOB	4674
221		1			LIGAND KCL	2	GAL	
281		1			MUD FLUSH	500	GAL	
419		1			ROTATING HEAD RENTAL	1	JOB	

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MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

x *Doyle Robert*
 DATE SIGNED **8-8-10** TIME SIGNED **1930** A.M. P.M.

REMIT PAYMENT TO:

SWIFT SERVICES, INC.
P.O. BOX 466
NESS CITY, KS 67560
785-798-2300

SURVEY	AGREE	UN-DECIDE
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?		
WE UNDERSTOOD AND MET YOUR NEEDS?		
OUR SERVICE WAS PERFORMED WITHOUT DELAY?		
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?		
ARE YOU SATISFIED WITH OUR SERVICE?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
<input type="checkbox"/> CUSTOMER DID NOT WISH TO RESPOND		

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on
 SWIFT OPERATOR **WAVE WILSON** APPROVAL



PO Box 466
 Ness City, KS 67560
 Off: 785-798-2300

TICKET CONTINUATION

CUSTOMER: LARSON OPERATING
 WELL: HARRIS 1-20

PRICE REFERENCE	SECONDARY REFERENCE / PART NUMBER	ACCOUNTING			TIME	DESCRIPTION	QTY	UNIT	QTY
		LOC	ACCT #	DF					
325		1				STANDARD CEMENT EA-2	100	SBS	
330		1				SWEET MULTI-BUSBY STANDARD	125	SBS	
276		1				FLOCELE	31	LBS	
277		1				GILSONITE	700	LBS	
283		1				SALT	500	LBS	
284		1				CALSEAL	5	SBS	50
285		1				CFR-1	50	LBS	
290		1				D-ADR1	2	GAL	
581		1				SERVICE CHARGE			
583		1							
							CUBIC FEET		225
							TON MILES		458
							TOTAL WEIGHT		22931
							LOADED MILES		40



JOB LOG

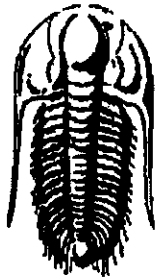
SWIFT Services, Inc.

DATE 8-8-10 PAGE NO. 1

CUSTOMER **ARSON OPERATING** WELL NO. **1-20** LEASE **HARRIS** JOB TYPE **5 1/2" LONGSTRING** TICKET NO. **18674**

CHART NO.	TIME	RATE (BPM)	VOLUME (BBLS/GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1930							ON LOCATION
								TD-4675 SET= 4674
								TP-4676 5 1/2" 15.5
								ST-43
								PORT COLLAR = 2181
	2020							DROPPBALL - CIRCULATE ROTATE
	2125	6	12		✓		400	PUMP 500 GAL MUD FLUSH "
	2127	6	20		✓		400	PUMP 20 BBLs KEL-FLUSH "
	2135		7					PLUG RH (30 SKS)
	2140	4 1/2	40		✓		250	MIX CEMENT WD-95 SKS SMD = 12.2 PP6 "
		4 1/2	25		✓		100	TL-100 SKS EF-2 = 15.3 PP6 "
	2155							WASH OUT PUMP - LINES
	2156							RELEASE LATCH DOWN PLUG
	2200	7	0		✓			DISPARE PLUG "
		6 1/2	100				750	SHUT OFF ROTATING
	2215	6	110.3				1500	PLUG DOWN - PSE UP LATCH IN PLUG
	2217						OK	RELEASE PSE - HELD
								WASH TRUCK
	2300							JOB COMPLETE

THANK YOU
WAYNE, JASON R., ROB



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Larson Operating Co**

562 W State RD 4
Olmitz, KS 67564

ATTN: Vern Schrag

20-18s-30w Lane,KS

Harris #1-20

Start Date: 2010.08.01 @ 18:25:05

End Date: 2010.08.01 @ 21:40:30

Job Ticket #: 39637 DST #: 1

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Larson Operating Co

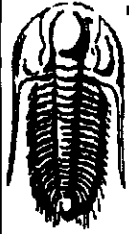
Harris #1-20

20-18s-30w Lane,KS

DST # 1

Lane: B

2010.08.01



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Operating Co

562 W State RD 4
Olmitz, KS 67564

ATTN: Vern Schrag

Harris #1-20

20-18s-30w Lane, KS

Job Ticket: 39637

DST#: 1

Test Start: 2010.08.01 @ 18:25:05

GENERAL INFORMATION:

Formation: **Lans. B**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended: 21:40:30

Test Type: Conventional Bottom Hole

Tester: Brandon Domsch

Unit No: 48

Interval: 3973.00 ft (KB) To 4002.00 ft (KB) (TVD)

Total Depth: 4002.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2904.00 ft (KB)

2897.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8322

Inside

Press@RunDepth: psig @ 3974.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2010.08.01

End Date:

2010.08.01

Last Calib.: 2010.08.01

Start Time: 18:25:05

End Time:

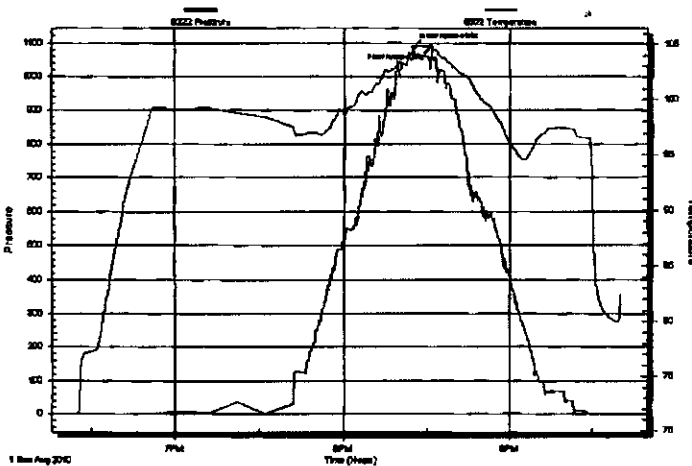
21:40:30

Time On Btm: 2010.08.01 @ 20:24:45

Time Off Btm: 2010.08.01 @ 20:31:15

TEST COMMENT: Ms run bridged out @ 2217

Pressure vs. Time



PRESSURE SUMMARY

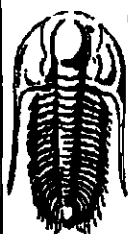
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1087.00	104.56	Initial Hydro-static
7	1090.53	104.86	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	Ms run	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Operating Co

Harris #1-20

562 W State RD 4
Olmitz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 39637

DST#: 1

ATTN: Vern Schrag

Test Start: 2010.08.01 @ 18:25:05

Tool Information

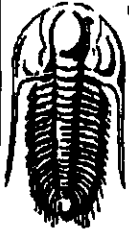
Drill Pipe:	Length: 3840.00 ft	Diameter: 3.80 inches	Volume: 53.87 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 119.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: lb
			Total Volume: 54.46 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial lb
Depth to Top Packer:	3973.00 ft			Final lb
Depth to Bottom Packer:	ft			
Interval between Packers:	29.00 ft			
Tool Length:	57.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3946.00	
Shut In Tool	5.00			3951.00	
Hydraulic tool	5.00			3956.00	
Jars	5.00			3961.00	
Safety Joint	3.00			3964.00	
Packer	5.00			3969.00	28.00 Bottom Of Top Packer
Packer	4.00			3973.00	
Stubb	1.00			3974.00	
Recorder	0.00	8322	inside	3974.00	
Recorder	0.00	8166	inside	3974.00	
Perforations	25.00			3999.00	
Bullnose	3.00			4002.00	29.00 Bottom Packers & Anchor

Total Tool Length: 57.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Operating Co

Harris #1-20

562 W State RD 4
Olmitz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 39637

DST#: 1

ATTN: Vern Schrag

Test Start: 2010.08.01 @ 18:25:05

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.49 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1450.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
0.00	Mis run	0.000

Total Length:

ft

Total Volume:

bbf

Num Fluid Samples: 0

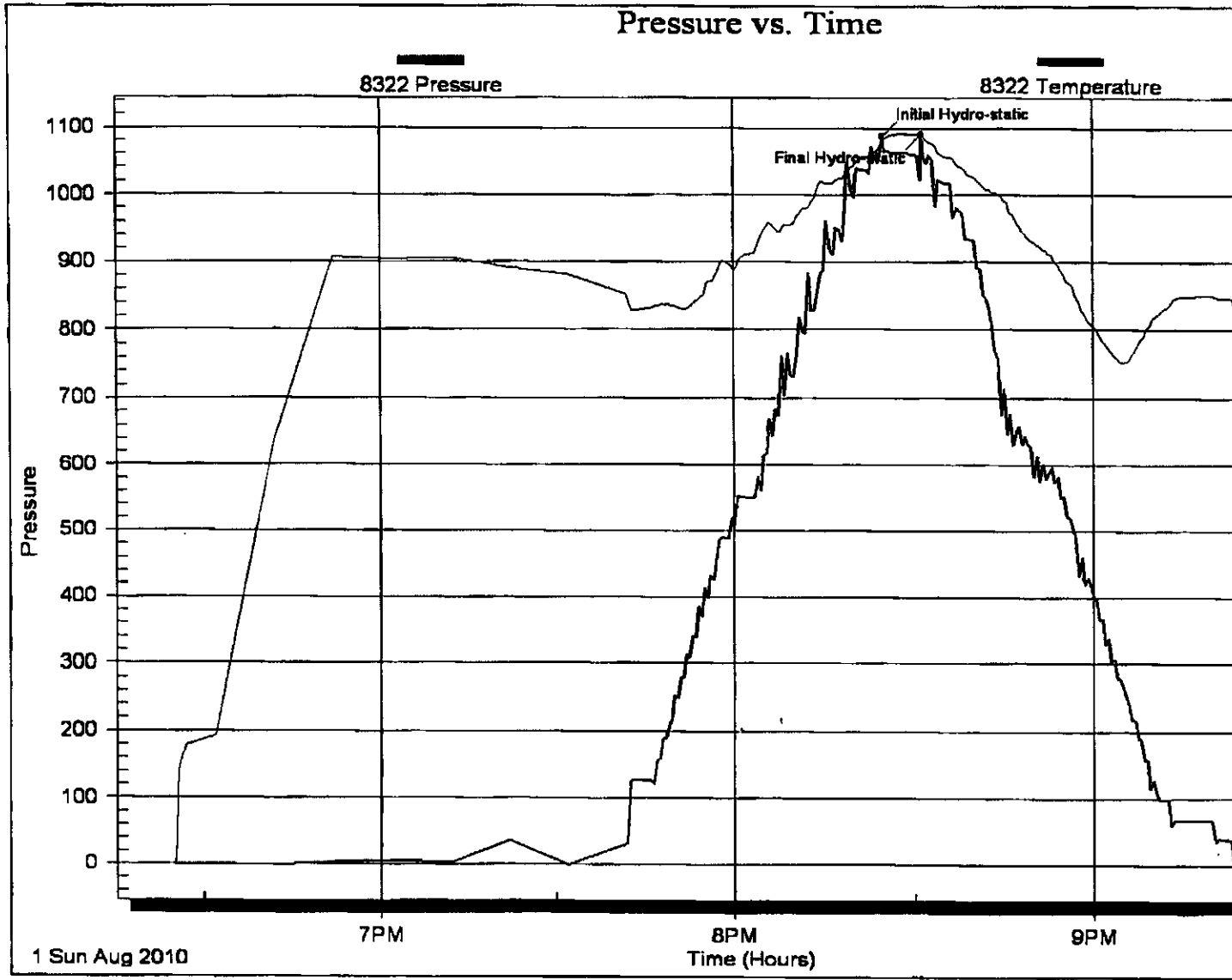
Num Gas Bombs: 0

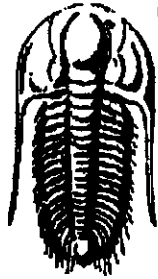
Serial#:

Laboratory Name:

Laboratory Location:

Recovery Comments:





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Larson Operating Co**

562 W State RD 4
Olmitz, KS 67564

ATTN: Vern Schrag

20-18s-30w Lane,KS

Harris #1-20

Start Date: 2010.08.02 @ 03:55:05

End Date: 2010.08.02 @ 09:14:29

Job Ticket #: 39638 DST #: 2

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Larson Operating Co

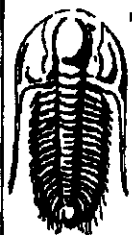
Harris #1-20

20-18s-30w Lane,KS

DST # 2

Lans B

2010.08.02



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Operating Co

562 W State RD 4
Olmitz, KS 67564

ATTN: Vern Schrag

Harris #1-20

20-18s-30w Lane, KS

Job Ticket: 39638

DST#: 2

Test Start: 2010.08.02 @ 03:55:05

GENERAL INFORMATION:

Formation: **Lans B**

Deviated: **No Whipstock: ft (KB)**

Time Tool Opened: **05:54:30**

Time Test Ended: **09:14:29**

Test Type: **Conventional Bottom Hole**

Tester: **Brandon Domsch**

Unit No: **48**

Interval: **3973.00 ft (KB) To 4002.00 ft (KB) (TVD)**

Total Depth: **4002.00 ft (KB) (TVD)**

Hole Diameter: **7.88 inches** Hole Condition: **Fair**

Reference Elevations: **2904.00 ft (KB)**

2897.00 ft (CF)

KB to GR/CF: **7.00 ft**

Serial #: **8322**

Inside

Press@RunDepth: **18.99 psig @ 3974.00 ft (KB)**

Start Date: **2010.08.02**

End Date:

2010.08.02

Start Time: **03:55:05**

End Time:

09:14:29

Capacity: **8000.00 psig**

Last Calib.: **2010.08.02**

Time On Btm: **2010.08.02 @ 05:54:15**

Time Off Btm: **2010.08.02 @ 07:26:30**

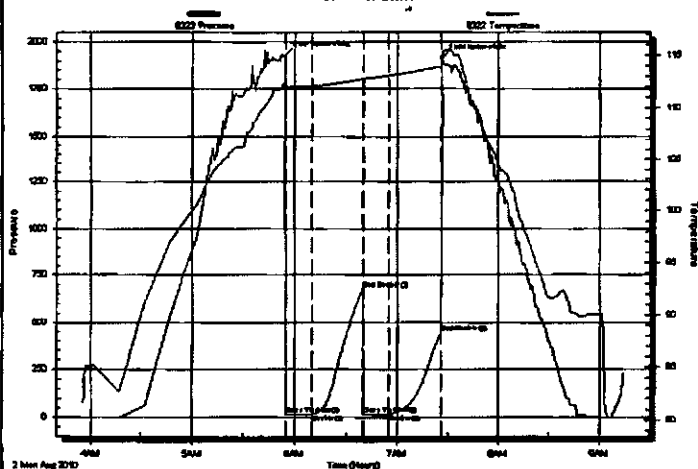
TEST COMMENT: **IF: Surface blow died in 13 mins.**

IS: No return.

FF: No blow.

FS: No return.

Pressure vs. Time



PRESSURE SUMMARY

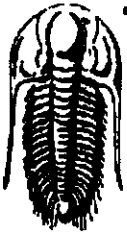
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1926.42	112.41	Initial Hydro-static
1	16.39	111.61	Open To Flow (1)
16	18.16	112.04	Shut-In(1)
46	674.02	112.71	End Shut-In(1)
46	17.79	112.67	Open To Flow (2)
61	18.99	113.04	Shut-In(2)
92	445.30	113.92	End Shut-In(2)
93	1915.66	115.19	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
3.00	O Spotted M 100% m	0.01

Gas Rates

	Choke (Inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Operating Co

Harris #1-20

562 W State RD 4
Olmütz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 39638

DST#: 2

ATTN: Vern Schrag

Test Start: 2010.08.02 @ 03:55:05

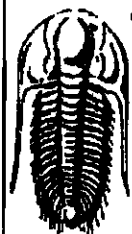
Tool Information

Drill Pipe:	Length: 3840.00 ft	Diameter: 3.80 inches	Volume: 53.87 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 119.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 55000.00 lb
			<u>Total Volume: 54.46 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	3973.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	29.00 ft			
Tool Length:	57.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3946.00	
Shut In Tool	5.00			3951.00	
Hydraulic tool	5.00			3956.00	
Jars	5.00			3961.00	
Safety Joint	3.00			3964.00	
Packer	5.00			3969.00	28.00 Bottom Of Top Packer
Packer	4.00			3973.00	
Stubb	1.00			3974.00	
Recorder	0.00	8322	inside	3974.00	
Recorder	0.00	8166	inside	3974.00	
Perforations	25.00			3999.00	
Bullnose	3.00			4002.00	29.00 Bottom Packers & Anchor

Total Tool Length: 57.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Operating Co

Harris #1-20

562 W State RD 4
Olmitz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 39638

DST#: 2

ATTN: Vern Schrag

Test Start: 2010.08.02 @ 03:55:05

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 53.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.49 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 1450.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
3.00	O Spotted M 100% _m	0.015

Total Length: 3.00 ft Total Volume: 0.015 bbl

Num Fluid Samples: 0

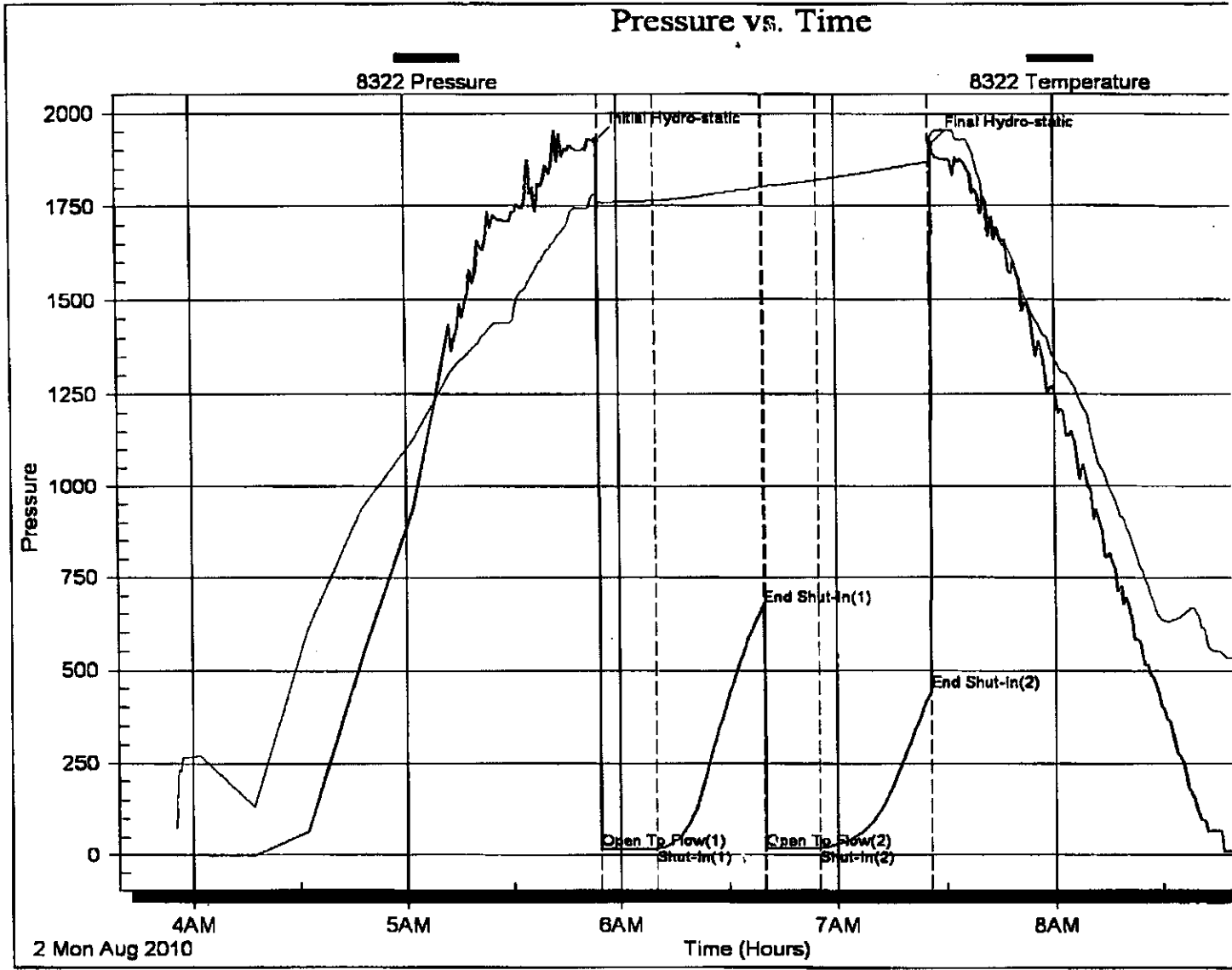
Num Gas Bombs: 0

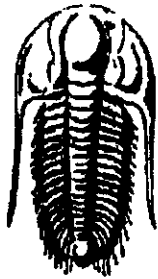
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Larson Operating Co**

562 W State RD 4
Olmitz, KS 67564

ATTN: Vern Schrag

20-18s-30w Lane,KS

Harris #1-20

Start Date: 2010.08.03 @ 07:25:15

End Date: 2010.08.03 @ 12:48:30

Job Ticket #: 039172 DST #: 3

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Larson Operating Co

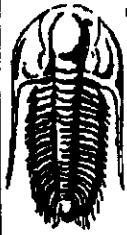
Harris #1-20

20-18s-30w Lane,KS

DST # 3

"H"

2010.08.03



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Operating Co

Harris #1-20

562 W State RD 4
Olmitz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 039172

DST#: 3

ATTN: Vern Schrag

Test Start: 2010.08.03 @ 07:25:15

GENERAL INFORMATION:

Formation: "H"

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:25:00

Time Test Ended: 12:48:30

Test Type: Conventional Bottom Hole

Tester: Mike Roberts

Unit No: 48

Interval: 4125.00 ft (KB) To 4155.00 ft (KB) (TVD)

Total Depth: 4125.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2904.00 ft (KB)

2897.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8166

Inside

Press@RunDepth: 27.78 psig @ 4127.00 ft (KB)

Start Date: 2010.08.03

End Date:

2010.08.03

Start Time: 07:25:15

End Time:

12:48:30

Capacity: 8000.00 psig

Last Calib.: 2010.08.03

Time On Btm: 2010.08.03 @ 09:24:45

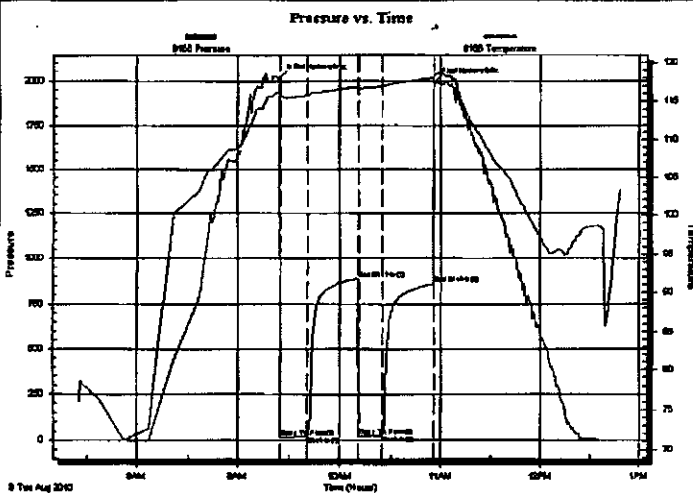
Time Off Btm: 2010.08.03 @ 10:56:30

TEST COMMENT: IF:Weak surface blow

IS:No return blow

FF:No blow

FS:No return blow



PRESSURE SUMMARY

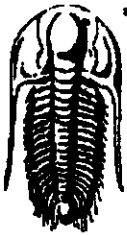
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2014.59	116.12	Initial Hydro-static
1	16.08	115.62	Open To Flow (1)
17	21.27	115.80	Shut-In(1)
47	886.70	116.87	End Shut-In(1)
47	22.40	116.53	Open To Flow (2)
61	27.78	117.06	Shut-In(2)
91	857.85	118.02	End Shut-In(2)
92	1991.54	118.49	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	m w ith oil spots	0.02

Gas Rates

	Choke (Inches)	Pressure (psig)	Gas Rate (Mc/d)



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Operating Co

Harris #1-20

562 W State RD 4
Olmitz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 039172

DST#: 3

ATTN: Vern Schrag

Test Start: 2010.08.03 @ 07:25:15

Tool Information

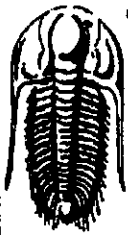
Drill Pipe:	Length: 3988.00 ft	Diameter: 3.80 inches	Volume: 55.94 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 119.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 56.53 bbl</u>	Tool Chased 5.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	4125.00 ft			Final 54000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	30.00 ft			
Tool Length:	58.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4098.00	
Shut In Tool	5.00			4103.00	
Hydraulic tool	5.00			4108.00	
Jars	5.00			4113.00	
Safety Joint	3.00			4116.00	
Packer	5.00			4121.00	28.00 Bottom Of Top Packer
Packer	4.00			4125.00	
Stubb	1.00			4126.00	
Perforations	1.00			4127.00	
Recorder	0.00	8322	inside	4127.00	
Recorder	0.00	8166	inside	4127.00	
Perforations	25.00			4152.00	
Bullnose	3.00			4155.00	30.00 Bottom Packers & Anchor

Total Tool Length: 58.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Operating Co

Harris #1-20

562 W State RD 4
Olmütz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 039172

DST#: 3

ATTN: Vern Schrag

Test Start: 2010.08.03 @ 07:25:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Satfnty:

0 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbf

Water Loss: 6.71 in²

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
5.00	m w th oil spots	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbf

Num Fluid Samples: 0

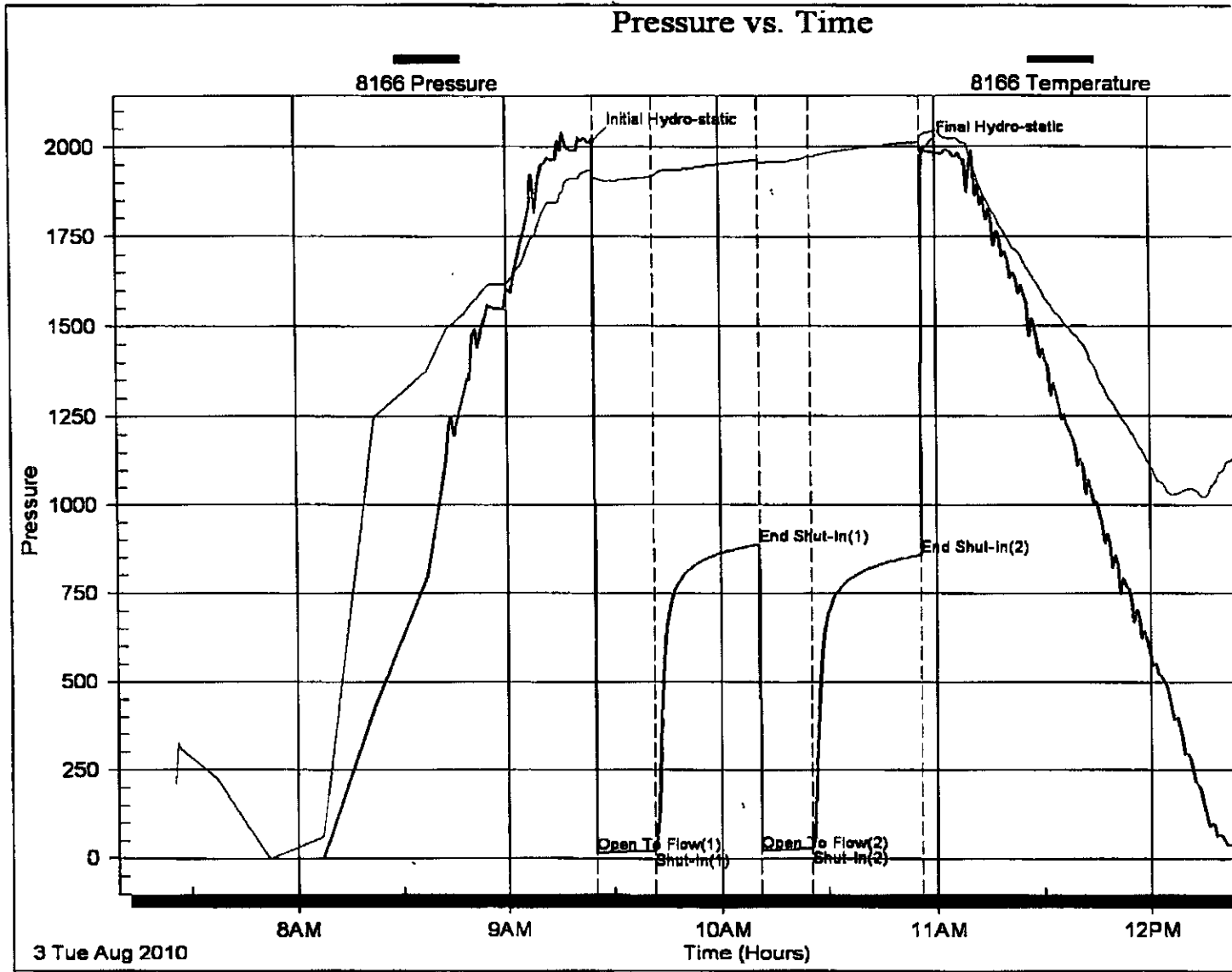
Num Gas Bombs: 0

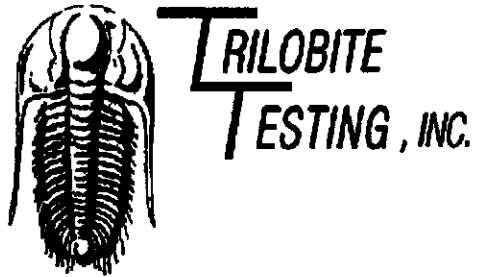
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





DRILL STEM TEST REPORT

Prepared For: **Larson Operating Co**

562 W State RD 4
Olmitz, KS 67564

ATTN: Vern Schrag

20-18s-30w Lane,KS

Harris #1-20

Start Date: 2010.08.04 @ 09:45:05

End Date: 2010.08.04 @ 16:57:59

Job Ticket #: 039173 DST #: 4

Trilobite Testing, Inc
PO Box 1733 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Larson Operating Co

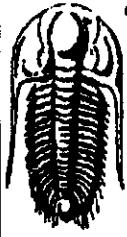
Harris #1-20

20-18s-30w Lane,KS

DST # 4

"L"

2010.08.04



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Operating Co
562 W State RD 4
Olmütz, KS 67564
ATTN: Vern Schrag

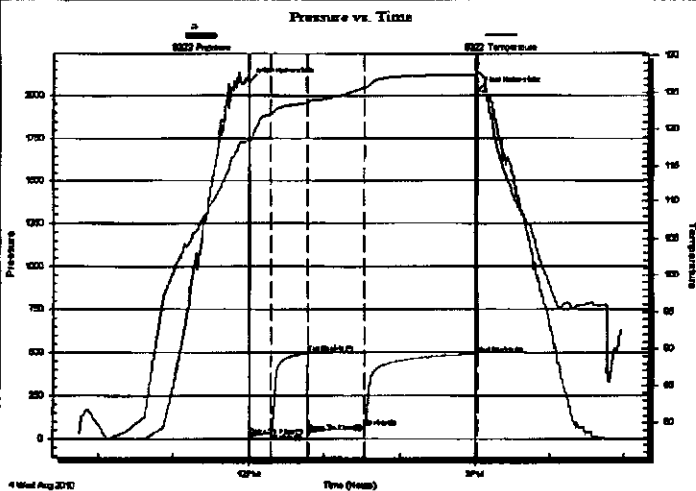
Harris #1-20
20-18s-30w Lane, KS
Job Ticket: 039173 DST#: 4
Test Start: 2010.08.04 @ 09:45:05

GENERAL INFORMATION:

Formation: "L"
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 12:01:15
Time Test Ended: 16:57:59
Interval: 4269.00 ft (KB) To 4283.00 ft (KB) (TVD)
Total Depth: 4283.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Reference Elevations: 2904.00 ft (KB)
2897.00 ft (CF)
KB to GRVCF: 7.00 ft
Test Type: Conventional Bottom Hole
Tester: Mike Roberts
Unit No: 48

Serial #: 8322 Inside
Press@RunDepth: 66.66 psig @ 4270.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2010.08.04 End Date: 2010.08.04 Last Calib.: 2010.08.04
Start Time: 09:45:05 End Time: 16:57:59 Time On Btm: 2010.08.04 @ 12:01:00
Time Off Btm: 2010.08.04 @ 15:01:29

TEST COMMENT: F:Built to 5" blow
IS:No return blow
FF:Built to 9" blow
FS:No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2079.54	118.70	Initial Hydro-static
1	16.33	118.27	Open To Flow (1)
17	37.53	122.08	Shut-In(1)
46	496.92	123.61	End Shut-In(1)
47	39.24	123.64	Open To Flow (2)
91	66.66	125.65	Shut-In(2)
181	488.41	127.45	End Shut-In(2)
181	2027.19	127.80	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	gcmo 10%g 24%m 66%o	0.30
60.00	gcmo 5%g 10%m 85%o	0.30
30.00	o 100%o	0.42
0.00	GIP=350 feet	0.00

Gas Rates

	Choke (Inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Operating Co

562 W State RD 4
Otritz, KS 67564

ATTN: Vern Schrag

Harris #1-20

20-18s-30w Lane, KS

Job Ticket: 039173

DST#: 4

Test Start: 2010.08.04 @ 09:45:05

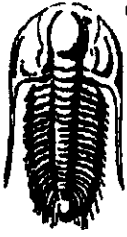
Tool Information

Drill Pipe:	Length: 4139.00 ft	Diameter: 3.80 inches	Volume: 58.06 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 119.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 58.65 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 53000.00 lb
Depth to Top Packer:	4269.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	14.00 ft			
Tool Length:	42.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4242.00	
Shut In Tool	5.00			4247.00	
Hydraulic tool	5.00			4252.00	
Jars	5.00			4257.00	
Safety Joint	3.00			4260.00	
Packer	5.00			4265.00	28.00 Bottom Of Top Packer
Packer	4.00			4269.00	
Stubb	1.00			4270.00	
Recorder	0.00	8322	inside	4270.00	
Recorder	0.00	8166	inside	4270.00	
Perforations	10.00			4280.00	
Bullnose	3.00			4283.00	14.00 Bottom Packers & Anchor

Total Tool Length: 42.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Operating Co

Harris #1-20

562 W State RD 4
Olmitz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 039173

DST#: 4

ATTN: Vern Schrag

Test Start: 2010.08.04 @ 09:45:05

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	36 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 56.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.74 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 1800.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

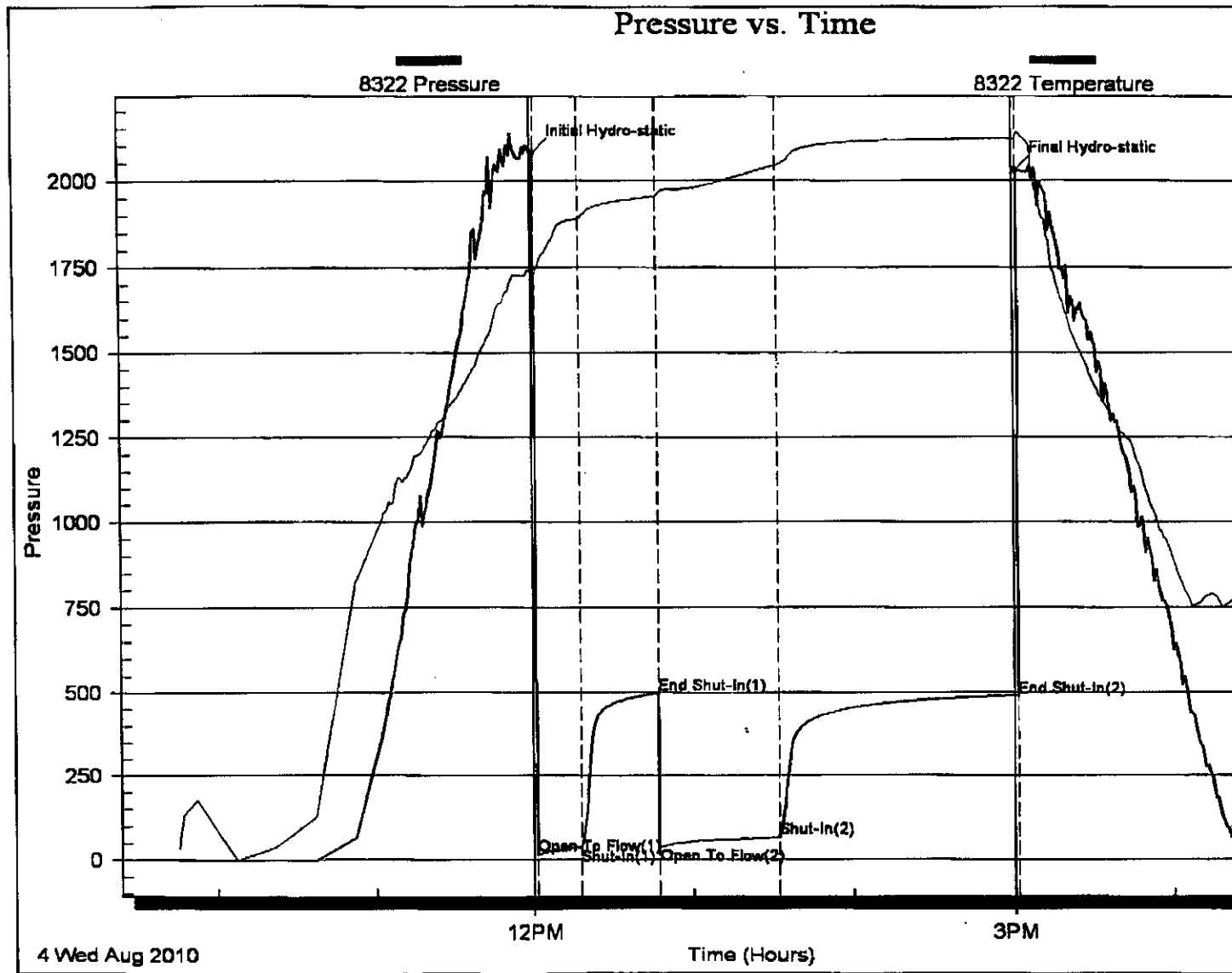
Length ft	Description	Volume bbl
60.00	gcmo 10%g 24%m 66%o	0.295
60.00	gcmo 5%g 10%m 85%o	0.304
30.00	o 100%o	0.421
0.00	GIP=350 feet	0.000

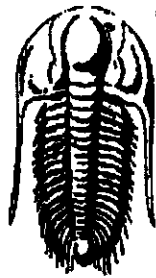
Total Length: 150.00 ft Total Volume: 1.020 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: API= 40 @100 corrected to 36@60





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Larson Operating Co**

562 W State RD 4
Olmitz, KS 67564

ATTN: Vern Schrag

20-18s-30w Lane,KS

Harris #1-20

Start Date: 2010.08.05 @ 01:00:15

End Date: 2010.08.05 @ 06:35:30

Job Ticket #: 039174 DST #: 5

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Larson Operating Co

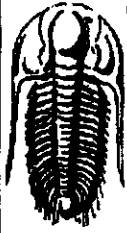
Harris #1-20

20-18s-30w Lane,KS

DST # 5

"L"

2010.08.05



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Operating Co

Harris #1-20

562 W State RD 4
Olmitz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 039174

DST#: 6

ATTN: Vern Schrag

Test Start: 2010.08.05 @ 01:00:15

GENERAL INFORMATION:

Formation: "L"

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:00:30

Time Test Ended: 06:35:30

Test Type: Conventional Bottom Hole

Tester: Mike Roberts

Unit No: 48

Interval: 4283.00 ft (KB) To 4293.00 ft (KB) (TVD)

Total Depth: 4293.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2904.00 ft (KB)

2897.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8166

Inside

Press@RunDepth: 14.90 psig @ 4284.00 ft (KB)

Start Date: 2010.08.05

End Date:

2010.08.05

Capacity: 8000.00 psig

Last Calib.: 2010.08.05

Start Time: 01:00:15

End Time:

06:35:30

Time On Btm: 2010.08.05 @ 03:00:15

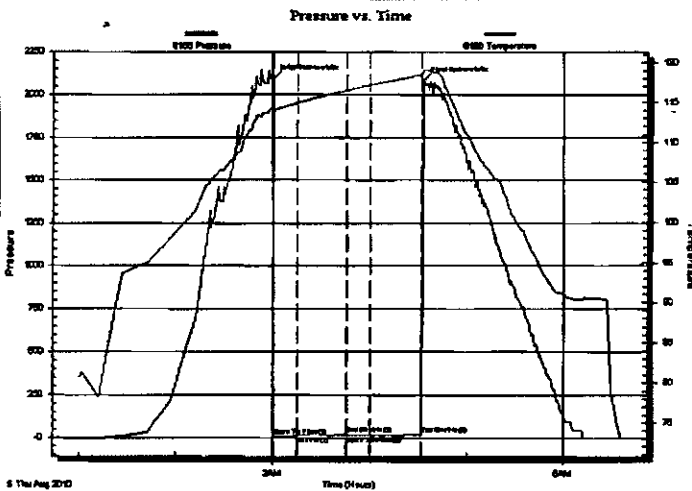
Time Off Btm: 2010.08.05 @ 04:32:30

TEST COMMENT: IF:Weak surface blow died in 6 min.

IS:No return blow

FF:No blow

FS:No return blow



PRESSURE SUMMARY

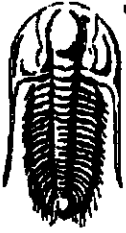
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2092.92	114.28	Initial Hydro-static
1	13.25	113.02	Open To Flow (1)
15	14.42	114.88	Shut-In(1)
45	21.78	116.50	End Shut-In(1)
46	14.03	116.52	Open To Flow (2)
60	14.90	117.20	Shut-In(2)
92	23.22	118.48	End Shut-In(2)
93	2080.89	119.09	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	m 100%	0.02

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Operating Co

Harris #1-20

562 W State RD 4
Olmitz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 039174

DST#: 5

ATTN: Vern Schrag

Test Start: 2010.08.05 @ 01:00:15

Tool Information

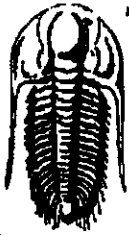
Drill Pipe:	Length: 4151.00 ft	Diameter: 3.80 inches	Volume: 58.23 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 119.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 58.82 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 53000.00 lb
Depth to Top Packer:	4283.00 ft			Final 53000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	10.00 ft			
Tool Length:	38.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4256.00	
Shut In Tool	5.00			4261.00	
Hydraulic tool	5.00			4266.00	
Jars	5.00			4271.00	
Safety Joint	3.00			4274.00	
Packer	5.00			4279.00	28.00 Bottom Of Top Packer
Packer	4.00			4283.00	
Stubb	1.00			4284.00	
Recorder	0.00	8322	inside	4284.00	
Recorder	0.00	8166	inside	4284.00	
Perforations	6.00			4290.00	
Bullnose	3.00			4293.00	10.00 Bottom Packers & Anchor

Total Tool Length: 38.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Operating Co

Harris #1-20

562 W State RD 4
Olmitz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 039174

DST#: 5

ATTN: Vern Schrag

Test Start: 2010.08.05 @ 01:00:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbf

Water Loss: 6.75 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
5.00	m 100%	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbf

Num Fluid Samples: 0

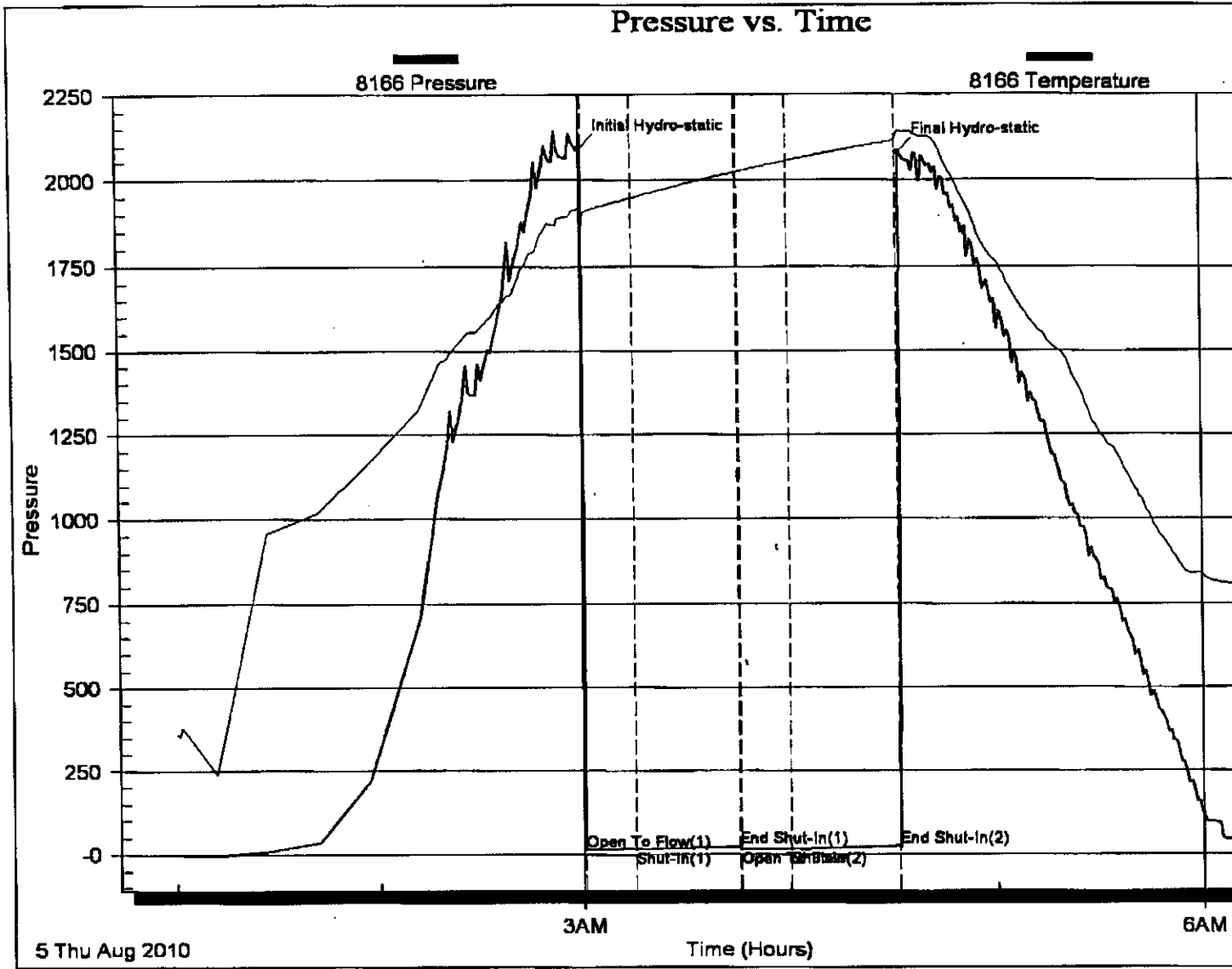
Num Gas Bombs: 0

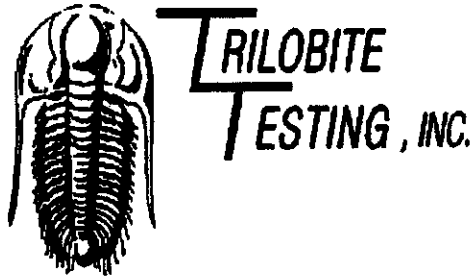
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





DRILL STEM TEST REPORT

Prepared For: **Larson Operating Co**

562 W State RD 4
Olmitz, KS 67564

ATTN: Vern Schrag

20-18s-30w Lane,KS

Harris #1-20

Start Date: 2010.08.05 @ 21:20:05

End Date: 2010.08.06 @ 06:10:45

Job Ticket #: 039175 DST #: 6

Trilobite Testing, Inc
PO Box 1733 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Larson Operating Co

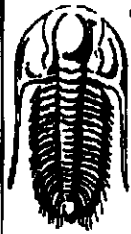
Harris #1-20

20-18s-30w Lane,KS

DST # 6

Marmaton

2010.08.05



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Operating Co

Harris #1-20

562 W State RD 4
Olmitz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 039175

DST#: 6

ATTN: Vern Schrag

Test Start: 2010.08.05 @ 21:20:05

GENERAL INFORMATION:

Formation: Marmaton

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:39:15

Time Test Ended: 06:10:45

Test Type: Conventional Bottom Hole

Tester: Mike Roberts

Unit No: 48

Interval: 4333.00 ft (KB) To 4388.00 ft (KB) (TVD)

Total Depth: 4388.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2904.00 ft (KB)

2897.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8322

Inside

Press@RunDepth: 578.31 psig @ 4373.00 ft (KB)

Start Date: 2010.08.05

End Date:

2010.08.06

Start Time: 21:20:05

End Time:

06:10:45

Capacity: 8000.00 psig

Last Calib.: 2010.08.06

Time On Btrm: 2010.08.05 @ 23:39:00

Time Off Btrm: 2010.08.06 @ 01:56:44

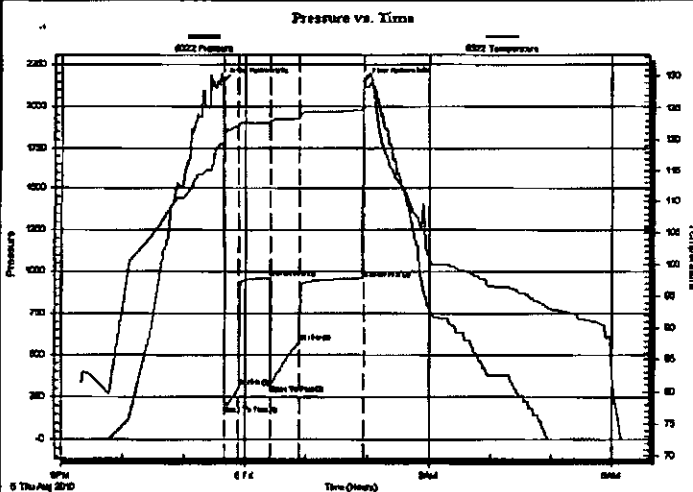
TEST COMMENT:

IF:BOB in 3 min.

IS:Bled off-- Return blow in 1 min. built to BOB in 10 min

FF:BOB in 2 min.

FS:Bled off-- Return blow in 2 min. built to BOB in 7 min



PRESSURE SUMMARY

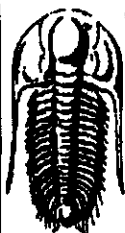
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2149.61	119.21	Initial Hydro-static
1	150.07	118.56	Open To Flow (1)
15	312.25	122.07	Shut-In(1)
46	962.86	122.62	End Shut-In(1)
47	319.30	122.79	Open To Flow (2)
75	578.31	123.29	Shut-In(2)
137	957.51	124.69	End Shut-In(2)
138	2149.47	127.51	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
372.00	mcgo 20%m 30%g 50%o	4.13
186.00	mcgo 5%m 20%g 75%o	2.61
620.00	mcgo 5%m 40%g 55%o	8.70
310.00	mcgo 5%m 30%g 65%o	4.35
0.00	GP=2232 feet	0.00

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Operating Co

Harris #1-20

562 W State RD 4
Omitz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 039175

DST#: 8

ATTN: Vern Schrag

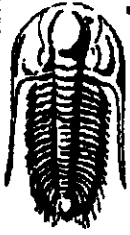
Test Start: 2010.08.05 @ 21:20:05

Tool Information

Drill Pipe:	Length: 4211.00 ft	Diameter: 3.80 inches	Volume: 59.07 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 119.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 70000.00 lb
		Total Volume:	59.66 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	4333.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	55.00 ft			
Tool Length:	83.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4306.00	
Shut In Tool	5.00			4311.00	
Hydraulic tool	5.00			4316.00	
Jars	5.00			4321.00	
Safety Joint	3.00			4324.00	
Packer	5.00			4329.00	28.00 Bottom Of Top Packer
Packer	4.00			4333.00	
Stubb	1.00			4334.00	
Perforations	5.00			4339.00	
Change Over Sub	1.00			4340.00	
Blank Spacing	32.00			4372.00	
Change Over Sub	1.00			4373.00	
Recorder	0.00	8322	inside	4373.00	
Recorder	0.00	8166	inside	4373.00	
Perforations	12.00			4385.00	
Bullnose	3.00			4388.00	55.00 Bottom Packers & Anchor
Total Tool Length:	83.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Operating Co
562 W State RD 4
Omitz, KS 67564

ATTN: Vern Schrag

Harris #1-20
20-18s-30w Lane, KS
Job Ticket: 039175 DST#: 6
Test Start: 2010.08.05 @ 21:20:05

Mud and Cushion Information

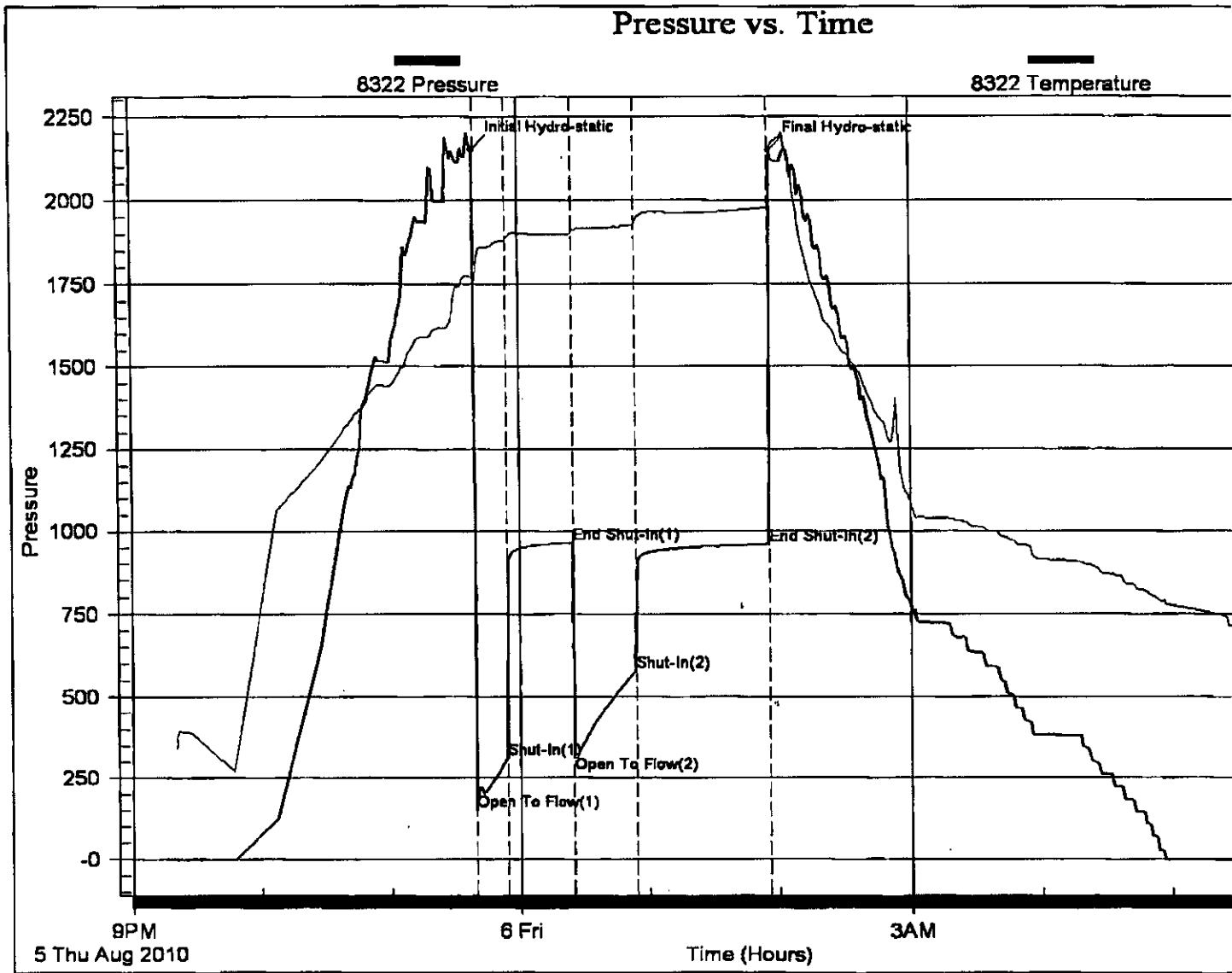
Mud Type: Gel Chem	Cushion Type:	Oil API	37 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 52.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.49 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 1450.00 ppm			
Filter Cake: 1.00 inches			

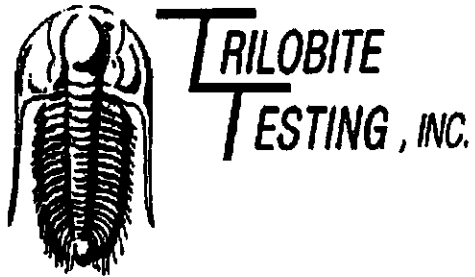
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
372.00	mcgo 20%m 30%g 50%o	4.134
186.00	mcgo 5%m 20%g 75%o	2.609
620.00	mcgo 5%m 40%g 55%o	8.697
310.00	mcgo 5%m 30%g 65%o	4.348
0.00	GIP=2232 feet	0.000

Total Length: 1488.00 ft Total Volume: 19.788 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: AP=38@70F





DRILL STEM TEST REPORT

Prepared For: **Larson Operating Co**

562 W State RD 4
Olmitz, KS 67564

ATTN: Vern Schrag

20-18s-30w Lane,KS

Harris #1-20

Start Date: 2010.08.07 @ 06:18:05

End Date: 2010.08.07 @ 12:57:29

Job Ticket #: 039701 DST #: 7

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Larson Operating Co

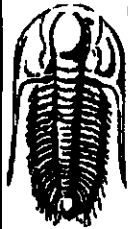
Harris #1-20

20-18s-30w Lane,KS

DST # 7

Cherokee

2010.08.07



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Operating Co

562 W State RD 4
Olmitz, KS 67564

ATTN: Vern Schrag

Harris #1-20

20-18s-30w Lane, KS

Job Ticket: 039701

DST#: 7

Test Start: 2010.08.07 @ 06:18:05

GENERAL INFORMATION:

Formation: Cherokee

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:28:15

Time Test Ended: 12:57:29

Interval: 4461.00 ft (KB) To 4571.00 ft (KB) (TVD)

Total Depth: 4571.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole

Tester: Mike Roberts

Unit No: 48

Reference Elevations: 2904.00 ft (KB)

2897.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8322

Inside

Press@RunDepth: 81.82 psig @ 4531.00 ft (KB)

Start Date: 2010.08.07

End Date:

2010.08.07

Start Time: 06:18:05

End Time:

12:57:29

Capacity: 8000.00 psig

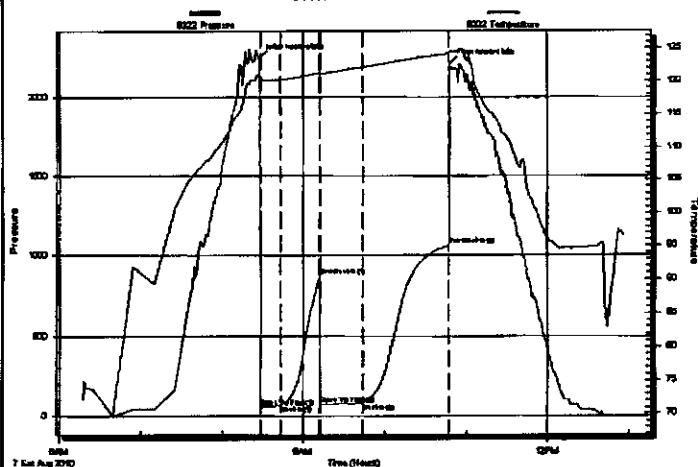
Last Calib.: 2010.08.07

Time On Btm: 2010.08.07 @ 08:27:45

Time Off Btm: 2010.08.07 @ 10:47:44

TEST COMMENT: IF: Built to 1 inch.
IS: No return.
FF: Built to 1/2 inch.
FS: No return.

Pressure vs. Time



PRESSURE SUMMARY

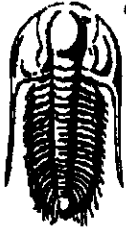
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2249.83	121.01	Initial Hydro-static
1	55.13	120.60	Open To Flow (1)
16	66.84	120.26	Shut-in(1)
45	866.66	121.32	End Shut-in(1)
45	73.31	121.12	Open To Flow (2)
76	81.82	122.18	Shut-in(2)
139	1060.52	124.20	End Shut-in(2)
140	2212.99	124.49	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
70.00	OCM 20% @ 80% m	0.34

Gas Rates

	Choke (Inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Operating Co

Harris #1-20

562 W State RD 4
Olmitz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 039701

DST#: 7

ATTN: Vern Schrag

Test Start: 2010.08.07 @ 06:18:05

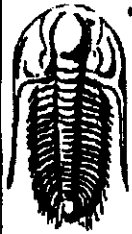
Tool Information

Drill Pipe:	Length: 4339.00 ft	Diameter: 3.80 inches	Volume: 60.86 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 119.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 60000.00 lb
		<u>Total Volume: 61.45 bbl</u>		Tool Chased 3.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	4461.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	110.00 ft			
Tool Length:	138.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4434.00	
Shut in Tool	5.00			4439.00	
Hydraulic tool	5.00			4444.00	
Jars	5.00			4449.00	
Safety Joint	3.00			4452.00	
Packer	5.00			4457.00	28.00 Bottom Of Top Packer
Packer	4.00			4461.00	
Stubb	1.00			4462.00	
Perforations	5.00			4467.00	
Change Over Sub	1.00			4468.00	
Drill Pipe	62.00			4530.00	
Change Over Sub	1.00			4531.00	
Recorder	0.00	8322	inside	4531.00	
Recorder	0.00	8166	inside	4531.00	
Perforations	37.00			4568.00	
Bullnose	3.00			4571.00	110.00 Bottom Packers & Anchor
Total Tool Length:	138.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Operating Co

Harris #1-20

562 W State RD 4
Olmitz, KS 67564

20-18s-30w Lane, KS

Job Ticket: 039701

DST#: 7

ATTN: Vern Schrag

Test Start: 2010.08.07 @ 06:18:05

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.17 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
70.00	OCM 20%o 80%m	0.344

Total Length: 70.00 ft Total Volume: 0.344 bbl

Num Fluid Samples: 0

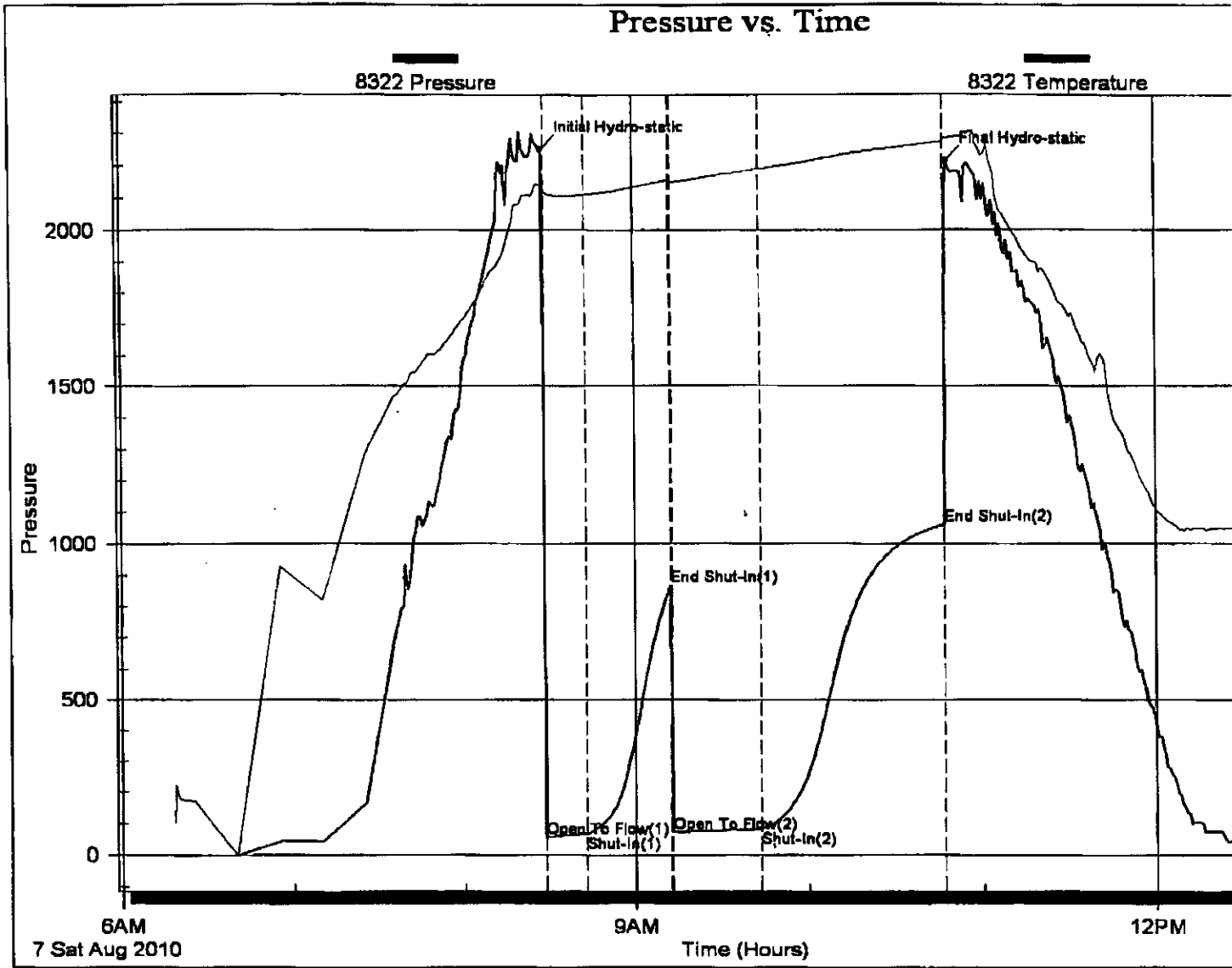
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





*Mark Parkinson, Governor
Thomas E. Wright, Chairman
Joseph F. Harkins, Commissioner
Ward Loyd, Commissioner*

November 22, 2010

Thomas Larson
Larson Engineering, Inc. dba Larson Operating
Company
562 W STATE RD 4
OLMITZ, KS 67564-8561

Re: ACO1
API 15-101-22249-00-00
Harris 1-20
SW/4 Sec.20-18S-30W
Lane County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,
Thomas Larson